This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A multi-layer filter media comprising a combination of at least two successive adjacent face-to-face thicknesses; each of said thicknesses being comprised of selected filter fibers of differing denier sizes; one of said thicknesses being an upstream layer and one of said thicknesses being a downstream layer; each thickness having fiber sizes so that the average pore size ~~characteristics~~ of one thickness differs from the average pore size ~~that~~ of an adjacent thickness; ~~with~~ said fibers of the upstream thickness being comparatively finer than said fibers of the downstream thickness such that the average pore size of the upstream thickness is smaller than the average pore size of the downstream thickness ~~and with the fiber sizes and pore sizes of said successive adjacent face to face thicknesses of fibers being calculated including factors of thicknesses and relative pore sizes of each layer to take in to account the differences in thickness, porosity, pore and fiber sizes between layers~~; and

~~with said porosity in such an arrangement comprising the ratio of pore volume to the total volume of filter media so that~~ wherein the calculated overall average pore size of the combined successive thicknesses is smaller than ~~that of~~ the average overall pore size of that of the finest fiber thickness, so as to optimize filtration performance efficiency; the

calculated average pore size of the combined successive thicknesses being calculated including factors of porosity of the individual thicknesses and the average pore size of the individual thicknesses.

2. (original) The filter media of Claim 1, said fibers of each thickness being carded and chopped and substantially opened and aligned.

3. (original) The filter media of Claim 1, wherein the fiber size characteristic of one thickness is less than six (6) denier and the other is at least six (6) denier.

4. (previously presented) The filter media of Claim 1, wherein each of said thicknesses comprise at least three (3) different denier fibers with the denier characteristics of each being approximately one to four (1-4), six (6) and at least twenty (20) respectively.

5. (original) The filter media of Claim 1, said combined thicknesses of filter media being integral.

6. (original) The filter media of Claim 1, said thicknesses being of separate face-to-face thicknesses.

7. (original) The filter media of Claim 6, said face-to-face layers of filter media including layer bonding means between said faces.

8. (amended) The filter media of Claim 7, said fibers having low melt characteristics with said layer bonding means comprising a thermal binding.

9. (original) The filter media of Claim 7, said layer bonding means comprising a chemical binding agent.

10. (previously presented) The filter media of Claim 9, said chemical binding agent being an acrylic binder.

11. (original) The filter media arrangement of Claim 1, wherein said successive thicknesses extend horizontally, with the upstream thickness of said combined successive thicknesses being of higher porosity and higher denier characteristics than a downstream thickness.

12. (original) The filter media of Claim 1, wherein the average pore size of said "n" layered filter media is expressed by the formula:

$$\frac{1}{M} = \varepsilon_i \varepsilon \ \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{M_i} \right)$$

wherein the porosity "ε" is the ratio of the pore volume to the total volume of medium, "Σ" is the summation from i = 1 to n, and "M" is the mean flow pore diameter of the filter media layers.

13. (original) The filter media of Claim 1, wherein the air frazier, permeability of an "n" layered media is expressed by the formula:

$$\frac{1}{v} = \varepsilon_i \varepsilon \ \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{v_i} \right)$$

wherein "v" is air frazier, fluid velocity, in cfm/square foot, the porosity, " ε " is the ratio of the pore volume to the total volume of medium; and, " Σ " is the summation from i = 1 to n.

14. (previously presented) The filter media of Claim 1, wherein said thicknesses comprise a coarse thickness and an intermediate thickness of fibers all of approximately one to two (1 - 2) inches in length with the coarse thickness advantageously approximately comprised of thirty (30) percent fifteen (15) denier fibers, thirty (30) percent six (6) denier fibers and forty (40) percent six (6) denier low melt fibers and the intermediate thickness advantageously comprised approximately of forty (40) percent six (6) denier fibers, ten (10) percent three (3) denier fibers and fifty (50) per cent (4) four denier low melt fibers.

15. (previously presented) The filter media of Claim 1, wherein said layers comprise a coarse thickness and a fine thickness of fibers all of approximately one half to two (1/2 -2) inches in length with the coarse thickness advantageously comprised approximately of, thirty (30) percent fifteen (15) denier fibers, thirty (30) percent six (6) denier fibers and forty (40) percent six (6) denier low melt fibers and the fine thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent two (2) denier low melt fibers.

16. (original) The filter media of Claim 1, wherein said thicknesses comprise a coarse thickness, an intermediate thickness and a fine thickness all of approximately one half to two (1/2 - 2) inches in length with the coarse thickness advantageously approximately comprised thirty (30) percent fifteen (15) denier fibers, thirty (30) percent

six (6) denier fibers and forty (40) percent six (6) denier low melt fibers; the intermediate thickness advantageously comprised approximately of forty (40) percent six (6) denier fibers, ten (10) percent three (3) denier fibers and fifty (50) percent four (4) denier low melt fibers; and, the fine thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent two (2) denier low melt fibers.

17. (original) The filter media of Claim 1, wherein said thicknesses comprise an intermediate thickness and a fine thickness of fibers all of approximately one half to two (1/2 - 2) inches in length with the intermediate thickness advantageously comprised of approximately of forty (40) percent six (6) denier fibers, ten (10) percent three (3) denier fibers and fifty (50) percent four (4) denier low melt fibers; and, the fine thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent (4) denier low melt fibers.

18. (Currently Amended)) A multi-thickness filter media comprising:

at least three different fiber sizes in successive horizontally extending adjacent face-to-face independent thicknesses of carded, chopped fibers~~,~~; said adjacent face-to-face thicknesses being bonded by a selected acrylic binder,

said carded, chopped fibers of each independent thickness having a combination of fibers and pore size characteristics with the carded, chopped fibers of each independent thickness being substantially opened and aligned, the fiber size

characteristics from downstream toward upstream thicknesses being approximately one to four (1-4), six (6) and at least twenty (20) deniers, respectively, from said downstream finer denier thickness toward said upstream coarser thicknesses, with pore sizes of the thicknesses increasing from the finer downstream lower denier thickness toward the coarser upstream higher denier thickness; ~~said adjacent face-to-face thicknesses being bonded by a selected acrylic binder,~~

the carded fibers in said thicknesses ~~being~~ defining a calculated average pore size for said thickness; said calculated average pore size including factors of thicknesses, pore and fiber sizes of each layer to take in to account the differences in thickness, porosity, pore and fiber sizes between layers; ~~with said porosity in such an arrangement comprising the ratio of pore volume to the total volume of filter media so that~~

the calculated overall average pore size of ~~that of~~ the adjacent successive thicknesses ~~is~~ being smaller than ~~that of~~ the calculated average overall pore size of said independent finest fiber thickness;

the calculated average pore size being calculated by the formulas expressed:

$$\frac{1}{M} = \varepsilon_i \varepsilon \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{M_i} \right) ,$$

wherein the porosity "ε" is the ratio of the pore volume to the total volume of medium, "Σ" is the summation from "i" = 1 to n, and "M" is the mean flow pore diameter of the

filter media thicknesses and with the air frazier permeability of said three thicknesses filter medium being expressed by the formula:

$$\frac{1}{\nu}=\varepsilon_i\varepsilon\ \cdots\varepsilon_n\left(\sum_{i=1}^{n}\frac{1}{\nu_i}\right)$$

wherein "v" is air frazier, fluid velocity, in cfm/square foot, the, porosity, "ε" is the ratio of the pore volume to the total volume of medium; and, "Σ" is the summation from "i" = 1 to n.

19. (withdrawn) A method of manufacturing filter media comprising: collecting a first independent measured thickness weight of chopped fibers in a mixer-blender zone, said first independent measured thickness weight of chopped fibers being of selected denier and subsequent pore size after being processed and bonded; collecting at least a second independent measured thickness weight of chopped fibers in a mixer-blender zone to be successively joined in overlying face-to-face thicknesses relation with said first measured thickness weight of chopped fibers, said second measured thickness weight of chopped fibers being of selected denier and pore size different from said denier and pore sizes of said first measured thickness weight of chopped fibers with said fibers of one independent thickness being finer than said fibers of said other independent thicknesses; 'passing said first and second measured thickness weights to a carding zone to open and align said chopped fibers in each said successively joined filter media thicknesses having face-to-face relationship to maximize particulate dirt

holding capacity and to increase efficiency with the thicknesses being calculated with an arrangement including factors of thicknesses, pore and fiber sizes of each layer to take in to account the differences in thickness, porosity, pore and fiber sizes between layers with said porosity in such an arrangement comprising the ratio of pore volume to the total volume of filter media so that the overall average pore size of that of successive face-to-face thicknesses is smaller than that of the average overall pore size of the independent finest filter thicknesses.

20. (withdrawn) The method of manufacturing filter media of Claim 19 wherein said face-to-face filter media thicknesses are selected in said mixer-blender zone to, have a decreasing denier and decreasing pore size when positioned in an upstream to downstream line of flow during filtering operation.

21. (withdrawn) The method of manufacturing filter media of Clam 19, wherein said face-to-face filter media thicknesses are each carded separately in said carding zone in successive steps and positioned in overlying face-to-face bonded relationship.

22. (withdrawn) The method of manufacturing filter media of Claim 19, said filter media thicknesses being bonded to each other by a selected bonding spray.

23. (withdrawn) The method of manufacturing filter media of Claim 19, wherein at least one of said filter media thicknesses is of low melt fibers, said filter media thicknesses being bonded to each other by heating.

24. (withdrawn) The method of manufacturing filter media of Claim 23 said low melt fiber melting being in the approximate range of two hundred to four hundred (200-400) degrees Fahrenheit.

25. (withdrawn) The method of manufacturing filter media of Clam 19, wherein said calculation of face filter media thicknesses is expressed by the formulas:

$$\frac{1}{M} = \varepsilon_i \varepsilon \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{M_i} \right)$$

and

$$\frac{1}{\nu} = \varepsilon_i \varepsilon \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{\nu_i} \right)$$

with the porosity "ε" is the ratio of the pore volume to the total volume of medium, "Σ" is the summation from "i" = 1 to n, and "M" is the mean flow pore diameter of the filter media layers and "v" is fluid velocity in cubic feet per minute over square feet (cfm/sq. ft.).

26. (withdrawn) The method of manufacturing filter media of Claim 19, wherein said calculations include an air frazier permeability calculation expressed by the formula:

$$\frac{1}{\nu} = \varepsilon_i \varepsilon \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{\nu_i} \right)$$

wherein "v" is fluid velocity in cubic feet per minute over square feet (cfm/sq. ft.), the porosity "ε" is the ratio of the pore volume to the total volume of medium, "Σ" is the summation from "i" =1 to n.

27. (withdrawn) A method of manufacturing multi-layered filter media comprising: collecting in a mixer-blender zone at least a first and second layer of chopped fibers in separate independent thickness layers, each layer of filter media being of measured weight with at least one layer being of low melt fibers with said fibers of one independent layer being finer than said fibers of said other independent layer fibers; passing each layer through a carding zone including separate successive carding zone sections for each to open and align the fibers of each layer and to position the first and second layers in adjacent face-to-face relation; passing said adjacent face to-face layers to a heating zone of sufficient heat to melt bind aid layers in fast relation, said carded fibers in said bonded layers being calculated including factors of thicknesses, pore and fiber sizes of each layer to take in to account the differences in thickness, porosity, pore and fiber sizes between layers with said porosity in such an arrangement comprising the ratio of pore volume to the total volume of filter media so that the overall average pore size of the majority of pores of combined adjacent successive layers is smaller than that of the average overall pore size of the majority of pores of said independent finest fiber thickness layer calculated by formulas expressed:

$$\frac{1}{M}=\varepsilon_i\varepsilon\ \cdots\varepsilon_n\left(\sum_{i=1}^{n}\frac{1}{M_i}\right)$$

and

$$\frac{1}{v}=\varepsilon_i\varepsilon\ \cdots\varepsilon_n\left(\sum_{i=1}^{n}\frac{1}{v_i}\right)$$

with the porosity "ε" is the ratio of the pore volume to the total volume of media, "Σ" is the summation from "i" = 1 to n, and "M" is the mean flow pore diameter of the filter media layers and "v" is fluid velocity in cubic feet per minute over square feet (cfm/sq. ft.).

28. Canceled.

29. (withdrawn) The method of Claim 45, wherein said fibers of each layer are carded, chopped, and substantially opened and aligned.

30. (withdrawn) The method of Claim 45, wherein the selected fiber characteristics of one filter media layer is less than size (6) denier and the other is at least six (6) denier.

31. (withdrawn) The method of Claim 45, wherein there are at least three (3) different denier fibers with the denier characteristics of each being approximately one to four (1-4), six (6) and at least twenty (20) respectively.

32. (withdrawn) The method of Claim 45, wherein said combined layers of filter media are integral.

33. (withdrawn) The method of Claim 45, wherein said layers being of separate face-to-face thicknesses.

34. (withdrawn) The method of Claim 33, said face-to-face layers of filter media including layer bonding means between said faces.

35. (withdrawn) The filter media of Claim 34, said fibers having low melt characteristics with said layer bonding means comprising a thermal binding.

36. (withdrawn) The method of Claim 35, said layer bonding means comprising a chemical binding agent.

37. (withdrawn) The method of Claim 36, said chemical binding agent being an acrylic binder.

38. (withdrawn) The method of Claim 45, wherein said successive layers extend horizontally, with the upstream thickness layer of said combined successive thicknesses layers being of higher porosity and higher denier characteristics than a downstream thickness layer.

39. (withdrawn) The method of Claim 45, wherein the average pore size of said layered filter media is expressed by the formula:

$$\frac{1}{M} = \varepsilon_i \varepsilon \cdots \varepsilon_n \left(\sum_{i=1}^{n} \frac{1}{M_i} \right)$$

wherein the porosity "ε" is the ratio of the pore volume to the total volume of medium, "Σ" is the summation from "i" = 1 to n, and "M" is the mean flow pore diameter of the filter media layers.

40. (withdrawn) The method of Claim 45, wherein the air frazier permeability of layered media is expressed by the formula:

$$\frac{1}{\nu}=\varepsilon_i\varepsilon \cdots\varepsilon_n\left(\sum_{i=1}^{n}\frac{1}{\nu_i}\right)$$

wherein "v" is air frazier, fluid velocity, in cfm/square foot, the porosity, "ε" is the ratio of pore volume to the total volume of medium; and " Σ " is the summation from "i" = 1 to n.

41. (withdrawn) The method of Claim 45, wherein said layered thicknesses comprise a coarse layered thickness and an intermediate layered thickness of fibers all of approximately one to two (1-2) inches in length with the coarse layer thickness advantageously approximately comprised of thirty (30) percent fifteen (15) denier fibers, thirty (30) percent six (6) denier fibers and forty (40) percent six (6) denier low melt fibers and the intermediate layer thickness advantageously comprised approximately of forty (40) percent six (6) denier fibers, ten (10) percent three (3) denier fibers and fifty (50) percent four (4) denier low melt fibers.

42. (withdrawn) The method of Claim 45, wherein said layer thicknesses comprise a coarse layer thickness and a fine layer thickness of fibers all of approximately one half to two (1/2 -2) inches in length with the coarse layer thickness

advantageously comprised approximately of thirty (30) percent fifteen (15) denier fibers, thirty (30) percent six (6) denier fibers and forty (40) percent six (6) denier low melt fibers and the fine layer thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent two (2) denier low melt fibers.

43. (withdrawn) The method of Claim 45, wherein said layer thicknesses comprise a coarse layer thickness, an intermediate layer thickness and a fine layer thickness all of approximately one half to two (1/2 - 2) inches in length with the coarse layer thickness advantageously approximately comprised thirty (30) percent fifteen (15) denier fibers, thirty (30) percent six (6) denier fibers and forty (40) percent six (6) denier low melt fibers; the intermediate layer thickness advantageously comprised of approximately forty (40) percent six (6) denier fibers, ten (10) percent three (3) denier fibers and fifty (50) percent four (4) denier low melt fibers; and, the fine layer thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent two (2) denier low melt fibers.

44. (withdrawn) The method of Claim 45, wherein said layer thicknesses comprise an intermediate layer thickness and a fine layer thickness of fibers all of approximately one half to two (1/2 - 2) inches in length with the intermediate layer thickness advantageously comprised of approximately forty (40) percent six (6) denier

fibers, ten (10) percent three (3) denier fibers and fifty (50) percent four (4) denier low melt fibers; and, the fine layer thickness advantageously comprised approximately of forty (40) percent three (3) denier fibers, ten (10) percent one (1) denier fibers and fifty (50) percent four (4) denier low melt fibers.

45. (withdrawn) A method of manufacturing a multi-layer filter media; the multi-layer filter media comprising at least two successive layers of face-to-face filter media so that the fiber and pore size characteristics of one layer differs from the fiber and pore size characteristics of the other layer with the fibers of an up stream layer of said successive layers being finer than a downstream layer of said successive layers; the method comprising:

selecting a desired overall average pore size of the combined successive upstream and downstream layers for the multi-layered filter media such that said overall average pore size is smaller than that of the overall pore size of that finest fiber downstream layer;

calculating an average pore size for each of said filter media layers by taking into consideration differences of thicknesses, pore sizes, fiber sizes and the porosity of the filter media layers such that the smallest average pore size of the filter media layers is larger than the selected overall average pore size for the combined successive upstream and downstream layers for the multi-layered filter media;

collecting a independent measured thickness weight of chopped fibers for each of said layers in a mixer-blender zone, said independent measured thickness weight of chopped fibers for each of said layers being of selected deniers such that the fibers for one of said layers is of a finer denier than the fibers of other of said layers;

processing and bonding said first fibers to form said filter media layers to have pore sizes corresponding to the calculated pore sizes;

the steps of selecting said fibers and processing and bonding said fibers to form said first and second filter media layers being done in accordance with a formula which takes into account the differences in said upstream and downstream layers and the factor differences of thickness, pore and fiber sizes and the porosity of the filter media layers so that the overall average pore size of the combined successive upstream and downstream layers will substantially correspond to the desired overall average pore size of the combined successive upstream and downstream layers of filter media.